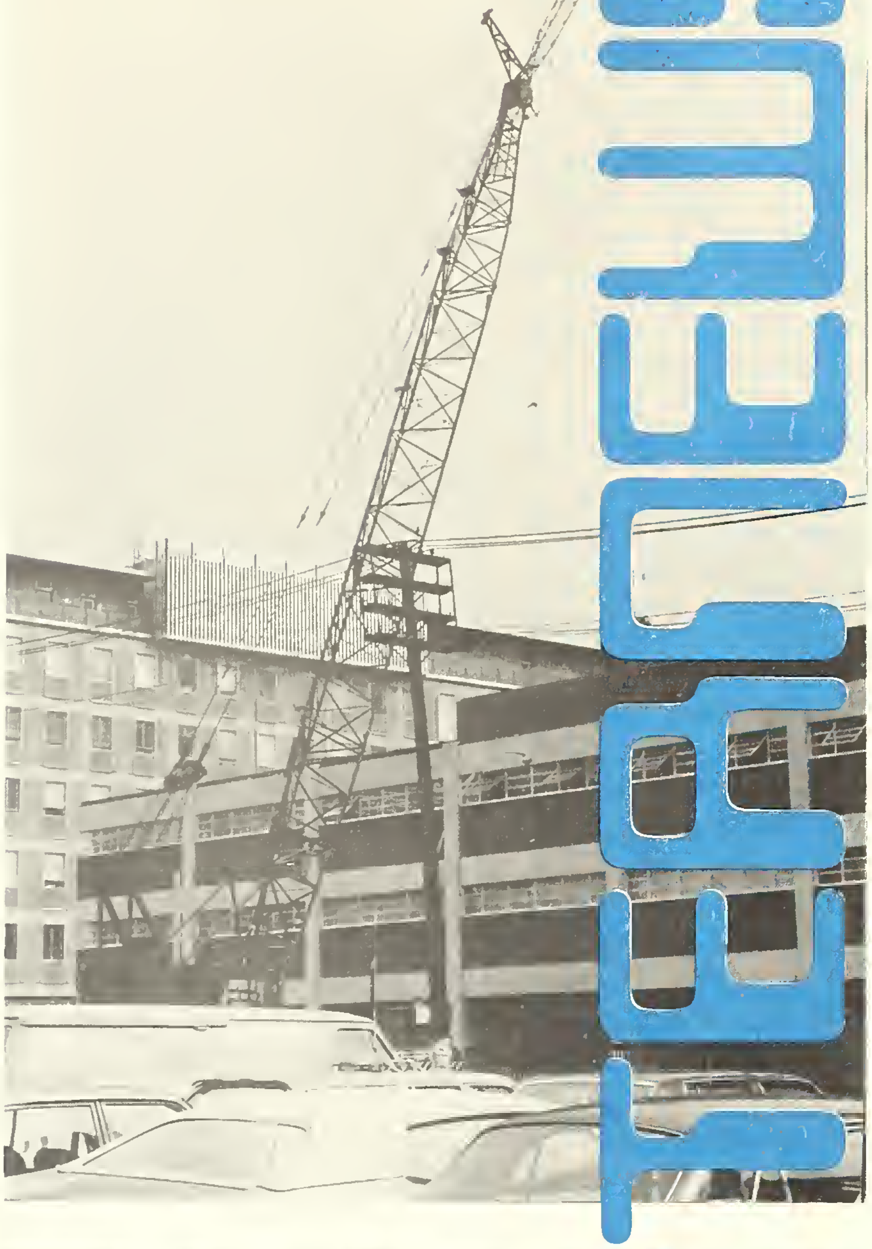

CAMPUS NEWS

University of Toronto

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Janet Barr, Editor

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The consolidation of computing machinery has been a goal of UTCC for approximately two years. There have been a number of impediments to this goal not the least of which was the Sandford Fleming fire. The fire caused the original consolidation plans to be scrapped and after the recovery period sent UTCC management back to the drawing boards. After many months of lengthly deliberation, difficult negotiations with vendors and, most importantly, careful planning, the consolidation of UTCC's IBM mainframes is about to become a reality.

Why has the goal of consolidation been so avidly sought by UTCC? To answer succinctly, consolidation will enable UTCC to better serve the overall computing needs of the entire University of Toronto. These needs are expressed in the University's desire for a quality computing service at the lowest possible cost while maintaining a high degree of responsiveness.

It is a very big order. Consolidation addresses the first two of these needs. Consolidation will be followed by subsequent steps designed to improve the responsiveness of UTCC in delivering its wide variety of services to the community.

The consolidation of mainframes has the immediate advantage of reducing operating costs by concentrating operations in one location. In addition, new technology now makes it possible to obtain effective computing. As a result, computing will be delivered to the University community at a price not presently possible. In addition, a consolidated machine area provides the potential for maximum backup and maximum flexibility for work load balancing.

Unfortunately, due to space restrictions, the maximum benefits of consolidation can not be realized at the present time. The DEC 1090 will have to remain in its present location for the immediate future. It will, however, remain a future goal of UTCC to consolidate all mainframes.

In the following pages you will find information regarding the construction of the physical site and the initial plans regarding the installation of the IBM 3033 mainframe along with the accompanying operating system. By early next year, the University will have a consolidated operation for all our administrative, academic, and IBM based time-sharing services. The articles and schematics in the pages which follow disclose merely the tip of a much larger iceberg. Our personnel have invested tremendous efforts in detailed planning. Movement of equipment, installation of systems, and transfer of communication lines, to mention only a few considerations, were carefully scheduled for a minimal disruption of service. Equipment layout and cabling considerations were designed to accommodate the complete machine configuration, an exercise which at times appeared similar to piecing together an unsolvable jigsaw puzzle. In the midst of all this design, Physical Plant personnel and numerous contractors spared no effort to accommodate our plans, even in the face of strikes and unforseen complications.

I wish to take this opportunity to thank all of those people who have worked so hard to bring this service to the University. I also encourage you to carefully read the following articles in this edition of COMPUTERNEWS and in future editions as our plans unfold.

Dr. Doron Cohen

IBM 3033 TO REPLACE 165

The photos on this month's cover feature some of the initial preparations for the installation consolidation of UTCC's computer systems in McLennan Laboratories, an operation that will begin with the installation of the IBM 3033 Processor.

The IBM 3033 Processor was selected to replace the S/370-165-II after extensive consultation with campus and outside consultants, and after performance benchmarking, technical evaluation, and financial analysis of several possible replacement systems.

Over a period of five months the Computer Centre staff ran and analyzed the results of ninety-nine benchmark runs on four different computer systems, including IBM compatible systems from another manufacturer, each with various combinations of memory and channel configurations and operating systems options. The benchmark stream consisted of a standard collection of General Purpose Batch jobs, HSJS jobs and TSO sessions which was representative of the 165 work load.

The IBM 3033 was selected for several reasons. The 3033 has sufficient capacity to satisfy the need for general purpose computing sevices for the next four to five years. The 3033 is the system with the longest useful life expectancy, has the lowest risk of technological obsolescence, and is the most likely system for further functional enhancement by the manufacturer.

The 3033 has a significantly improved cost-performance ratio over the 165. The 3033 processing capability is approximately double that of the 165, and costs less in today's inflated dollars than the 165 did in 1972.

The increased processing capability of the 3033 will provide our users with improved batch turnaround and TSO terminal response time while the improved cost-performance of the 3033 will allow the Centre to reduce its charges for computing and lower the costs for computing to our users.

Staging of Services and Systems

During the past four months, Physical Plant has been in the process of constructing a new machine room to house the Centre's computer systems on the third floor of McLennan Laboratories. The work has progressed on schedule and should be completed by the beginning of November.

cont'd...

IBM 3033 TO REPLACE 165 cont'd

The consolidation of the computer systems in the McLennan Laboratories requires several inter-related, carefully planned moves of computer systems and services to minimize the disruption of services to our users.

The planned moves can best be described with reference to the successive changes to the McLennan Labs machine room site plan (see Figures I through IV below) as the consolidation plan progresses.

PHASE I Reconfiguration of the 65 (Fig. I)

The S/360-65 computer system which is already in the consolidated machine room will be reconfigured to accept the new systems in successive phases. This reconfiguration entails the relocation of some disk drive equipment and can be accomplished in early November without noticeable disruption in the APL and ATS services run on the 65.

PHASE II Installation 3033 (Fig. II)

The installation of the 3033 computer system will take place in two stages. During the first stage from November 17 to December 8, the 3033 system will be installed along with new disk drives in McLennan Labs. A card reader and line printer will be made available by the S/370-165-II operations group and will be moved to the new site for the 3033 system. The 65 tape drives will be temporarily switched into the 3033 when they are required. With this initial configuration, the new 3033 system can be thoroughly tested with the MVS production operating system while the 165 continues to provide normal production services. During this time, the 3033 will be stress tested and any major hardware, software and operational problems will be resolved.

The second stage of the 3033 installation will be the actual switch over of 165 services (GPJS,HSJS,TSO, and WYLBUR) to the 3033, The switch over is scheduled to begin at 18:00 Friday, December 8 and to finish at 8:00 Monday, December 11. During this weekend, the 165 services will not be available. All 165 disk datasets will be copied, backed-up and moved to the 3033 system. The 165 tape drives and tape library will be moved. Telecommunications controllers and cables will be disconnected from the 165 and re-installed on the 3033. A full final test with remote batch and interactive terminals will be conducted before the 3033 system is brought up for production on Monday morning.

cont'd...

IBM 3033 TO REPLACE 165 cont'd

PHASE III 165 Installation (Fig. III)

After the 165 services have been moved to the 3033 on December 11, the 165 system can be disassembled, moved and re-installed in the McLennan Laboratories. The re-installation and full test of the 165 with APL and ATS services currently on the 65 should be completed by January 13. The weekend switch over of APL and ATS services would be similar to, but much simpler than, the switch over of services from the 165 to the 3033, since the 65's equipment will be connected to the 165 and does not have to be physically moved. APL datasets now residing on older 2314 disk drives will be moved to newer, higher performance disk drives attached to the 165. The APL and ATS services will be significantly improved with the move of these services to the 165. APL and ATS terminal response time will be improved, the APL work space size will be increased, file access times will be improved and the continuing problems associated with meeting the increased demand for file space will be relieved.

Once the APL and ATS services are in production on the 165, the 65 will be disassembled and sold.

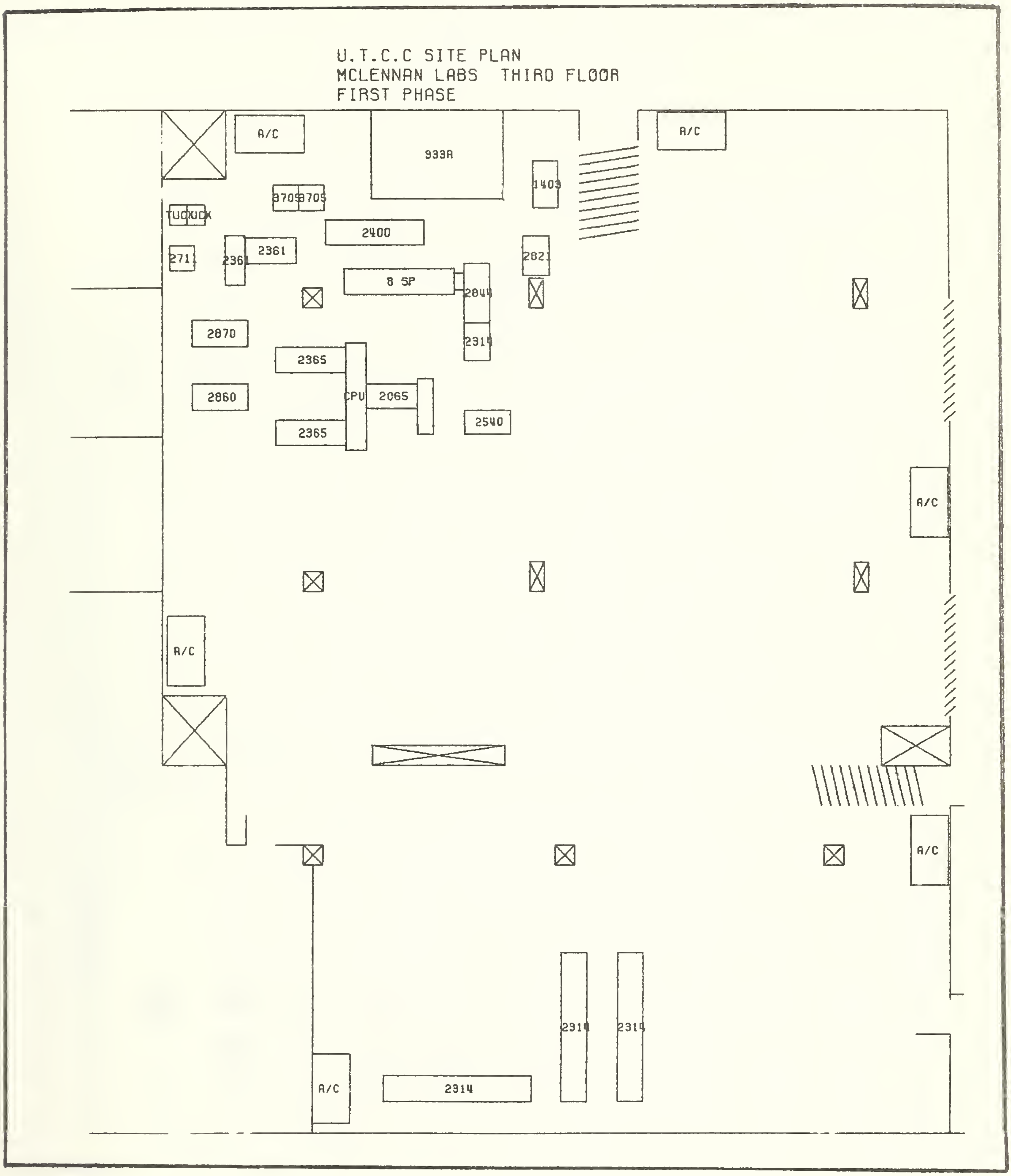
PHASE IV Administrative System Installation (Fig. IV)

The administrative system is tentatively scheduled to be installed in mid-February. The system will be installed in McLennan Labs along with new disk drives and will be thoroughly tested sharing other peripheral devices with the 3033 system as needed. Up to this time, the S/370-158-3 would continue to be the administrative production system. As with the installation of the other systems, the actual switch over of services from the 158 to the administrative system in McLennan Laboratories will take place on a weekend.

Phase IV will complete the physical consolidation of IBM computer systems in the McLennan Labs. The final site plan is designed to be operationally effective and will provide an effective base for sharing resources and back-up of critical services. The consolidation of systems will enhance the reliability and flexibility of the computing services offered to all our users.

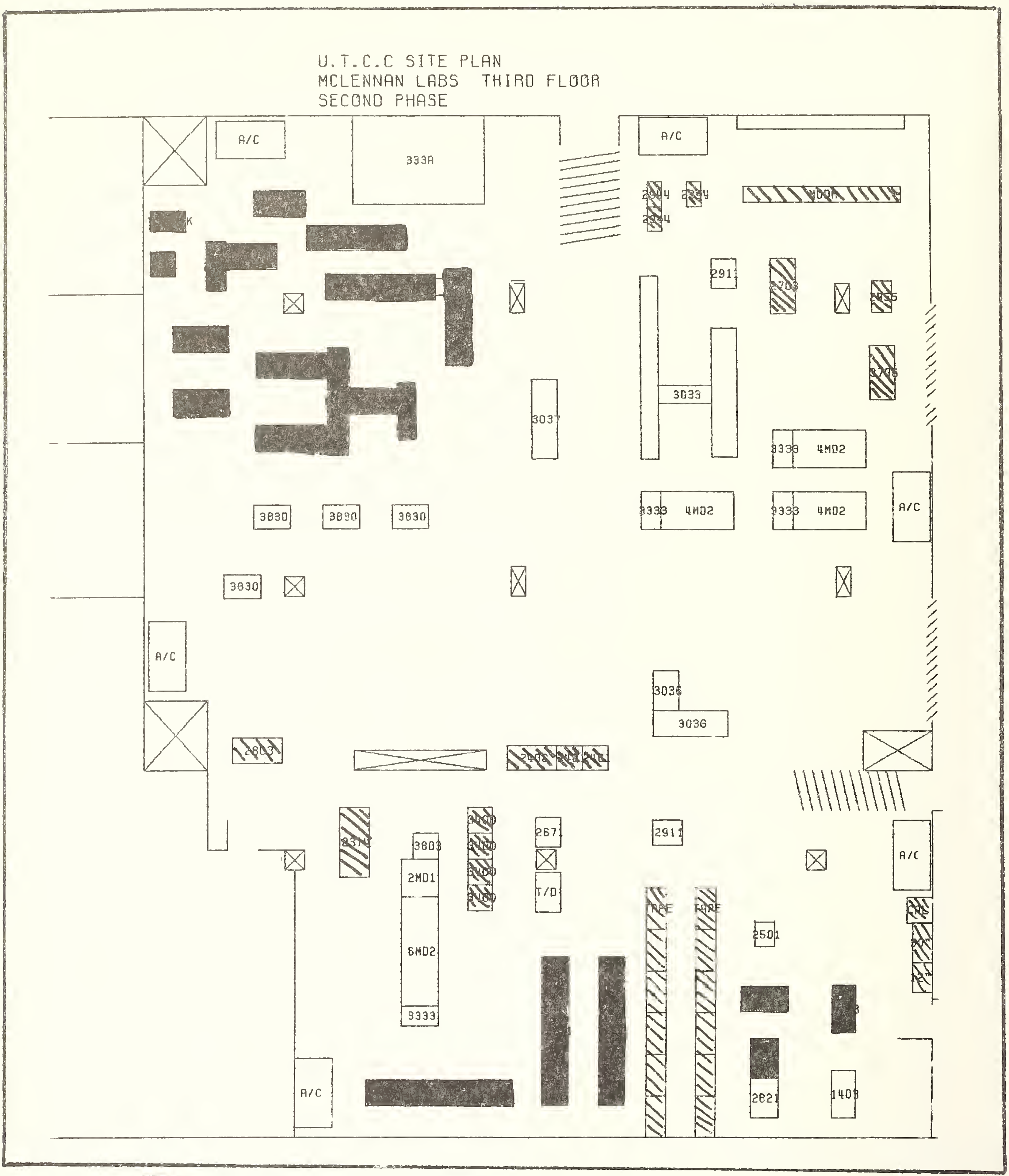
Rein Mikkor

FIGURE I



☐ 65 RECONFIGURATION NOVEMBER 17

FIGURE II

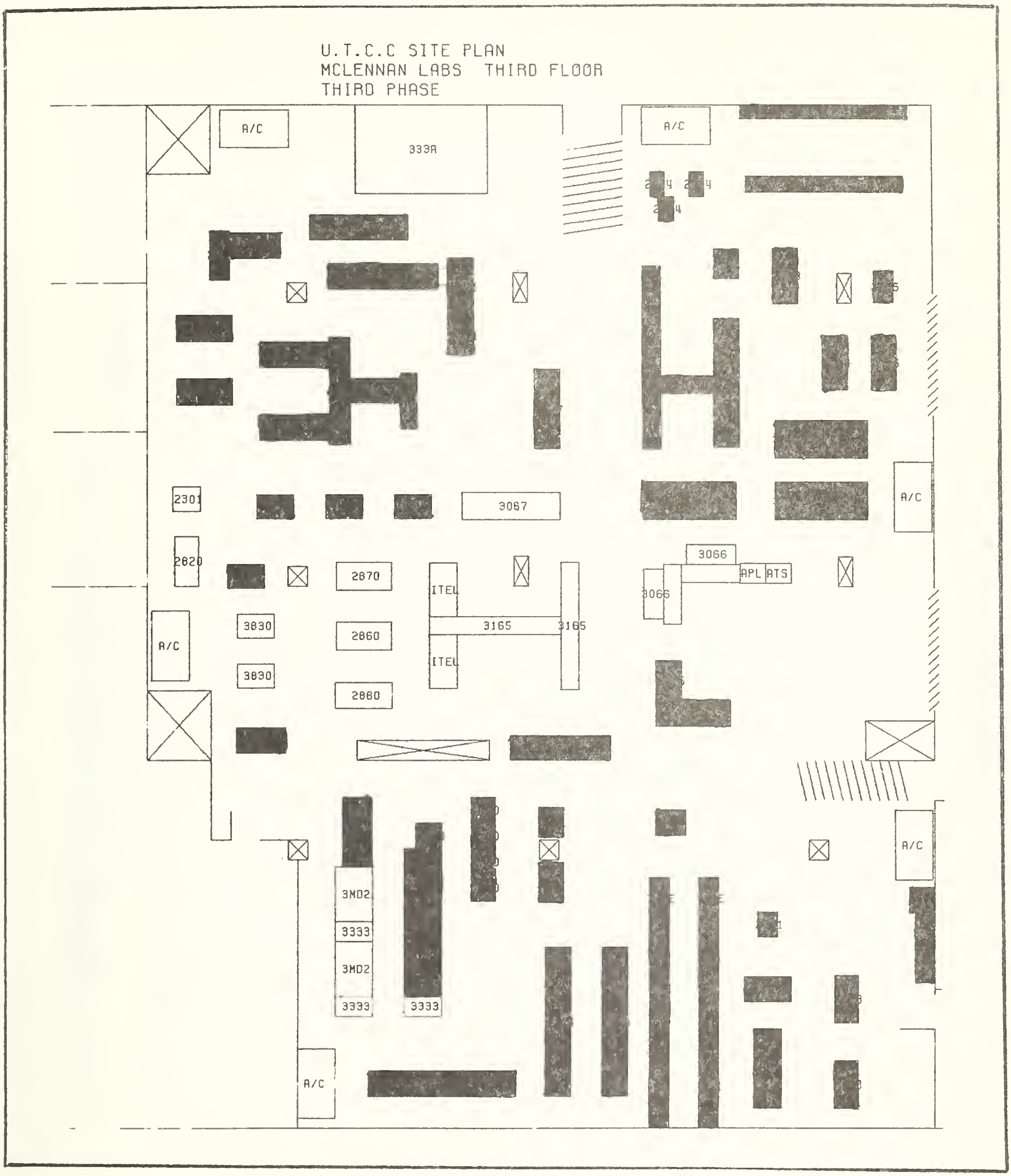


■ EQUIPMENT ALREADY IN PLACE

☐ FIRST PART OF 3033 INSTALLATION NOV. 17 TO DEC. 8

▨ SECOND PART OF 3033 INSTALLATION DEC. 8 TO DEC. 11

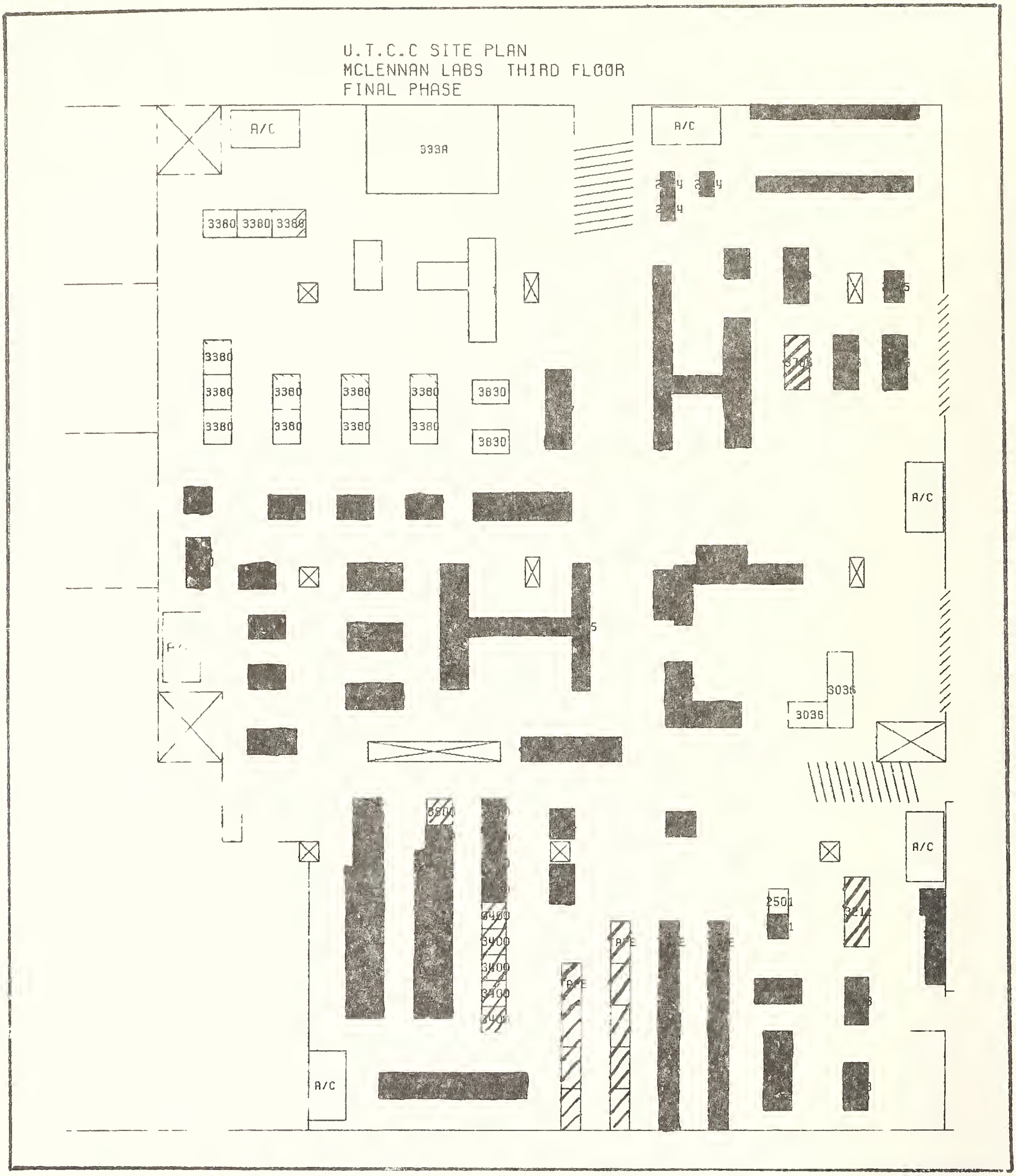
FIGURE III



■ EQUIPMENT ALREADY IN PLACE

□ 165 INSTALLATION DEC. 11 TO JAN. 13

FIGURE IV



■ EQUIPMENT ALREADY IN PLACE

☐ FIRST PART OF ADMIN. SYSTEM INSTALLATION FEB.(8 DAYS)

▨ SECOND PART OF ADMIN. SYSTEM INSTALLATION FEB.(3 DAYS WKEND)

MVS INSTALLATION - AN OVERVIEW

Coincident with the installation of the 3033, UTCC will be installing the MVS operating system as its production system for the General Purpose, HSJS, TSO and WYLBUR services. The purpose of this article is to give a brief overview of this installation project.

The MVS Project to Date

The MVS system which will be installed in production in December 1978 has been under development at UTCC for over two years. In the summer of 1977, the first user test was held. Since then, approximately 15 major user tests have been held during normal production hours. These tests ranged in duration from 4 to 8 hours. In addition, approximately 6 'mini' tests were held during the system test time of 10 PM - 1 AM. Throughout these tests, there was a continuous cycle of problem detection and resolution. This process was terminated after the last MVS user test on May 9, 1978 since the system was stable and there were no outstanding problems to be resolved.

In a related effort, a very similar MVS system was installed in production on the S/370-158-3 in April 1978 (see COMPUTERNEWS #159). The experience with this system has been excellent, particularly in the area of reliability, which was 100% during the first month of production.

Final Pre-Installation Validation

As a final validation of the correct functioning of the MVS system, a series of production validation days are planned. These validation days are described in detail elsewhere in this issue (see "MVS Implementation Plans").

Actual Installation

A period of approximately 2 weeks during the 3033 installation will be devoted to extensive testing of the MVS system on the 3033 system prior to actual production. (Throughout this period, normal production will continue undisturbed on the S/370-165-II.) This lengthy final testing period will allow us to thoroughly stress test both the hardware and software. As a result, the MVS system on the 3033 should be "solid" by the time of the cut-over of production from the 165 to the 3033.

Sean Keeley

MVS IMPLEMENTATION PLAN

In order to ensure a smooth transition from MVT to MVS, UTCC will be scheduling several MVS production validation days on the S/370-165-II. The first validation day will be held on Friday, October 20, 1978. A second validation day is tentatively scheduled for Friday, October 27, 1978. During these validation days, full MVS will be run as the production system on the S/370-165-II for a full 21 hour period. Normal charging will be in effect; however, the rates will be based on those to be used on the 3033.

cont'd...

MVS IMPLEMENTATION PLAN cont'd

Although the actual rates have not been finalized at the time of writing, they will be significantly lower than those currently in effect on the 165 due to the improved cost performance of the 3033 Processor.

The purpose of these validation days is implied by their name - they are to be a final validation of the functioning of MVS prior to the 3033 installation. Since the smoothness of the actual 3033/MVS installation will depend on the degree of validation done, it is important that users attempt to verify the correct functioning of their applications on MVS during these days. The reduced rates are, of course, an added "bonus". If any user will not be able to personally run his jobs during the validation days, he may have them run by a UTCC staff member by contacting a Computing Co-ordinator (see back page of COMPUTERNEWS for phone numbers).

To assist us in the handling and distribution of these jobs, the user must include the following comment cards in the JCL of their job:

```
//*NAME     user name
//*ADDRESS  user address
//*PHONE    user phone number
```

The actual operation of the validation days will proceed as follows. At 10 PM, the production MVT system will be shut down as usual. Then all jobs queued in the system waiting for execution and print will be transferred from MVT to MVS. MVS will be brought up as the production system and production will resume as usual at 1 AM. The system will then run exactly like normal production until 10 PM at which time MVS will be shut down, any queues transferred back to MVT, and MVT brought up again as normally scheduled.

Important Note:

A feature of the utility which will be used to transfer the queues from MVT to MVS (and vice-versa), allows the user to specify via a control card whether jobs awaiting execution are to be transferred or not (print is always transferred). This will allow a user to specify on a job read in under MVT that it is not to be transferred to MVS; such a job will wait in the MVT queue until MVT is brought up again after the MVS production day. Similarly, a job read in while MVS is operating can be flagged as not to be transferred to MVT. Such a job would not execute unless it was done prior to MVS shut down. This will allow a user to read in jobs under MVS without worrying about cancelling them if they are not executed by the time the scheduled MVS day is over. A list of all jobs left in the queues at the time of MVS shut down and not transferred back to MVT will be posted at all terminal locations.

cont'd...

MVS IMPLEMENTATION PLAN cont'd

The actual format of the control card necessary to invoke this feature, along with other documentation pertinent to the MVS validation days will be available from Computing Co-ordinators before the first validation date.

Very Important Note:

As was mentioned previously, the purpose of these validation days is to validate the functioning of MVS. They are not intended to validate performance. On the 3033, which was designed to run MVS, MVS will outperform MVT - this is not true on the 165 which was designed prior to the development of MVS. Therefore, UTCC expects the performance of the MVS system during these validation days to be somewhat poorer than the MVT system. Users are asked to bear with us, since a series of thorough validation days will ensure that the 3033/MVS system will perform reliably and well when it goes into production in December.

As with earlier tests of the MVS system, users can run their current jobs without change on the MVS production validation days. Reference documentation on the MVS operating system will be available at all terminal locations and the Information Office. TSO and WYLBUR users can have any detailed questions concerning TSO and WYLBUR under MVS answered by the Time-sharing Advising Service at 978-6465.

Any problems encountered during validation days should be reported immediately to a Computing Co-ordinator or to the Time-sharing Advisors.

In order for us to be able to effectively resolve problems pertaining to user jobs running under MVS, it is important for all users to validate their programs under MVS.

Any comments, suggestions or concerns about the proposed upgrade in Computing Services should be directed to Stan Yagi, Manager, Services (978-7331) or to your local Computing Co-ordinator.

Stan Yagi
Sean Keeley

STATISTICAL SERVICES

A new service called 'Statistical Services', is being offered by the Department of Statistics and UTCC.

The aim of this service is to offer statistical and programming advice to both novice and sophisticated research workers. The service may be broken down into four main areas:

a. expert statistical advice in areas such as analysis of variance, experimental design, regression, sample survey design and analysis, statistical computing, and time series

b. advice on the use of statistical software

c. programming services

d. short courses tailored to departmental needs and demands

cont'd...

STATISTICAL SERVICES cont'd

The resource people for this service are highly qualified in their areas of specialization. The statistical consulting is provided by members of the Department of Statistics and by associates of the service in other departments. Programming advice and services will also be provided by qualified UTCC personnel. The short courses will be offered by members of the Department of Statistics and UTCC. The courses will cover subjects such as the statistical analysis process, survey design, introduction to JCL, introduction to statistical packages such as SPSS, SAS, BMDP, etc. The statistical packages themselves are supported by UTCC applications programmers.

The service has been designed to accommodate the needs of a broad range of users. The person with a limited statistical and/or computer background can obtain extensive aid in both the design and analysis phases of his project. The more experienced researcher will benefit by learning about the latest statistical and programming techniques available to handle his particular experimental design.

The Statistical Consulting Office is located in Sidney Smith Hall, Room 5027, phone 978-4156. The hours of service are Monday to Friday, 13:00-17:00 hours. For programming advice and services contact the Computing Co-ordinator Sue Chong at the Arts and Science Terminal, 978-6509, or Jill Reece at the Engineering Annex Terminal, 978-4357.

Lillian Lapczak
Jill Reece

TAPE DATA LOSS WARNING

UTCC advisors are often contacted by distraught users who have accidentally destroyed valuable tape data by overwriting one or more of their data files. To avoid this problem, try to keep the following basic rule in mind: if a file is in any way rewritten, all the following files are lost. There are no exceptions to this rule and there is absolutely no way to position the tape to obtain any of the lost data. For example, if you had 12 files on a tape and rewrote file 3, you could never, under any condition, read files 4 through 12, no matter what you did.

There are several reasons for this, but one major reason, in the case of IBM standard labelled tapes, is that in addition to the data file itself, the operating system writes dataset trailer labels and additional end-of-file marks as needed. Also, there is no way to position the tape to the user's "lost data" once these end-of-file marks are written (this is true for unlabelled tapes as well. The data is just gone for good, all gone. ... So be careful!

If you have any questions, please call Herb Kugel at 978-7286.

Herb Kugel

NON-CREDIT SHORT COURSES

Beginning in October, the following short courses will be offered by the Computer Centre. Please note that only persons holding a valid UTCC Customer Account Number (CAN) are eligible to attend. If you wish to register, please contact the Information Office, Room 206, 11 King's College Road (Engineering Annex), 978-4990.

1. INTRODUCTION TO COMPUTING

Prerequisites: Although there are no prerequisites for this course, persons with some experience using prepackaged programs such as SPSS may find the kind of information given at this level beneficial.

Dates: October 2, 3, 4, 5 and 6

Time: 3:00 - 4:00 p.m.

This 5 day course is designed to introduce the person who has had no previous computer experience to the various computer services available at UTCC.

Emphasis will be on overall concepts and terms rather than on details regarding the use of a particular machine or system.

2. INTRODUCTION TO OS JOB CONTROL LANGUAGE (JCL)

Prerequisites: Course #1 or equivalent background knowledge.

Dates: October 11, 12, 13, 16 and 17

Time: 2:00 - 3:00 p.m.

JCL is a set of control statements which must be supplied to the operating system to give it the information required to initiate, process and complete a job or unit of work. These statements communicate details such as who the user is, what he/she wants done, how much time it will take, how much space is required, what devices will be involved, what data and problem-solving routines are to be used, where they are located and where the results are to be printed or stored. This course is intended to get the student started by presenting the basic JCL statements, their uses and coding rules.

cont'd...

NON-CREDIT SHORT COURSES cont'd

3. 'WYLBUR' FOR PROGRAMMERS USING CARDS

Prerequisites: Experience running batch jobs on the S/370-165-II including the use of simple JCL and at least one source language compiler or application package.

Dates: October 16, 18 and 20

Time: 3:00 - 4:00 p.m.

WYLBUR is a system designed to allow the user to do work on the computer using a typewriter-like terminal connected to the system by telephone lines . The two major applications of WYLBUR are computer programming and text processing. Programmers at typewriter terminals can use WYLBUR to type programs, store them on disk, submit them for batch processing and examine parts of the output prior to printing on the highspeed printer. WYLBUR can relieve the programmer of many of the problems and delays usually associated with card input.

4. INTRODUCTION TO 'WYLBUR' FOR PROGRAMMERS USING TSO

Prerequisites: Same as Course #3 and experience running batch jobs through TSO or a similar RJE system.

Dates: October 23, 25 and 27

Time: 3:00 - 4:00 p.m.

WYLBUR offers good editing capabilities, edit recovery and fast response to editing and remote job entry/output commands. WYLBUR does not offer any interactive programming in FORTRAN, PL/I, etc. but does have an EXEC language analogous to TSO's CLIST facility. This can be used to write simple interactive programs, as well as to prepare JCL under program control.

5. INTRO. TO STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES (SPSS)

Prerequisites: Background in Social Science statistics plus Course #1 or equivalent. Those who have had no previous experience with OS JCL should also plan to attend Course #2.

Dates: October 30, 31, November 1, 2 and 3

Time: 4:00 - 5:00 p.m.

cont'd...

NON-CREDIT SHORT COURSES cont'd

This course is aimed at Social Science users who plan to use the computer to process their data. SPSS is an applications oriented programming language which contains powerful routines for the analysis of data while allowing users to manipulate their data with simple FORTRAN-like statements. The course will be an introduction to SPSS for users who are not familiar with the package; it would not be suitable for those who already have a working knowledge of SPSS.

6. INTRODUCTION TO STATISTICAL ANALYSIS SYSTEM (SAS)

Prerequisites: Some programming experience essential.

Dates: November 6, 7, 8 and 9

Time: 4:00 - 5:00 p.m.

SAS is perhaps the most powerful and flexible of the statistical packages at UTCC. It has its own "language" syntax with limited programming capabilities and, similar to SPSS and DATATEXT, a statistical analysis component.

7. INTRODUCTION TO MATHEMATICAL PACKAGES AT UTCC

Prerequisites: None.

Date: November 9

Time: 10:00 - 12:00 a.m.

The objectives of this two-hour discussion are to:

- Outline the mathematical packages available at UTCC in the areas of numerical analysis, optimization, and simulation.
- Give an overview of each package pointing out the particular strengths and possible problems that might occur during usage.
- Discuss the use of USERBOOK 3.7 modules for locating general information, JCL, and documentation.
- Discuss the basic JCL required to use the packages and the JCL required to print documentation and source listings.

DECSYSTEM 10 NEWS

CPU Runtime Anomaly

It was recently discovered that the CPU time which the monitor purports to be a program's execution time may be too high by as much as 20% or more. Users can observe this effect by getting job statistics while running a compute-bound program while no other jobs on the system are active. The second Control-T entered after starting the program causes the incremental elapsed and run times to be displayed.

For example,

```
DAY: 4.80 RUN: 5.05 ......
```

shows that the CPU runtime is 5% larger than is possible even before monitor overhead (10-20%) is taken into account.

This discrepancy appears to involve the relationship among various timing adjustments in the Central Processor, the execution cycle counter and the software conversion of the counter value into actual time. The phenomenon is still under investigation.

Since a number of users have already jumped to the conclusion that they are being overcharged, it is necessary to point out why that is not the case.

The charging algorithm and rates which have been in effect since July 1, 1978, were designed to result in reasonable charges for each type of computing normally done on the DECsystem 10. In fact, the present rate schedule is based on an analysis of several benchmarks in which the reported CPU runtime and memory usage were taken as starting points.

Therefore, if the algorithm used to compute the CPU runtime is adjusted, a simultaneous change in the rate schedule will be necessary so that the final dollar charge for a particular application will remain unchanged. It is also worth noting that since the new rates were implemented in July, there have been no complaints about the cost of computing on the DECsystem 10.

DECsystem 10 Batch

The DEC 10 is widely known to be a very efficient and popular time-sharing computer offering a broad range of services to interactive users. However, many users are not aware that the DEC 10 also has a convenient and easy-to-use batch processing system.

Even on a system predominately used for interactive time-sharing there will be many tasks which are repetitive and well-defined. This type of application is tedious for the user if it requires entering a fixed sequence of commands and program inputs more than once or twice. Another nuisance is the compute-bound program which requires no user input yet ties up a terminal while it executes.

Experienced DEC 10 users avoid these problems by preparing a "control" file and submitting it to the batch processor. This causes the file to be queued for later execution as an independent job. In the meantime, the user continues using his terminal for applications requiring his full attention.

cont'd...

DECSYSTEM 10 NEWS cont'd

It is also more cost-effective to use the batch system for the types of jobs described above. Because the system never waits for human response, the connect time for the batch job will be less than that accumulated by a terminal user. Also, the batch job can take advantage of lower overall rates by running during non-prime time.

Preparing a Control File

Any text editor can be used to prepare the control file. The file name is arbitrary; the extension is usually CTL, but this is not mandatory.

The three main types of lines which make up the control file are distinguished by the first character in the lines. These are:

```
.  monitor commands
*  program input
!  comments
```

The file SAMPLE.CTL below is a simple example of a batch control file:

```
!THIS IS SAMPLE.CTL - A SAMPLE BATCH JOB
.PJOB
.COMPILE/COMP/LIST MYPROG
.R IBMLST
*MPROG.LST
```

A few monitor commands are illegal for batch jobs (e.g., SEND), but most behave exactly as if done at a terminal. In addition, several special commands are available for batch jobs.

A few of these commands facilitate the processing of various error conditions, and others (making use of a special line labelling technique) permit the use of conditional branches during execution of the control file. The file SAMP2.CTL below illustrates this.

```
!THIS IS SAMP2.CTL
START::
.DIRECT MYPROG.CBL
.IF(ERROR) .GOTO NOPROG
.LOAD MYPROG
.SAVE
.GOTO END
NOPROG::
.DIRECT OTHER.CBL[12,34]
.IF(ERROR) .GOTO END
.COPY MYPROG.CBL=OTHER.CBL[12,34]
.BACKTO START
%TERR::   !Here on time-out error
.DIR MYPROG.*
END::
```

Submitting a Control File

Control files are placed in the batch input queue using the monitor command:

```
SUBMIT file.ext/switches
```

Switches may be used to effect the queueing and execution of the job in many ways. For example, the sample job above could be submitted as follows:

```
.SUBMIT SAMP2/AFTER:02:00
        /TIME:01:00/OUTPUT:NOLOG
```

This would cause the file SAMP2.CTL to be executed as a batch job at 2:00 AM the next morning. If it exceeded 1 minute of CPU time, it would be stopped. The log file normally produced (SAMP2.LOG) would not be printed (but would remain on disk). Note that if SAMP2.LOG already existed, the new log file information would be appended to it, rather than superseding it.

cont'd...

DECSYSTEM 10 NEWS cont'd

One final comment is necessary: UTCC does not support card input for batch; all batch jobs must be submitted from user terminals. Therefore, there is no need to be concerned with $JOB, $PASSWORD or any similar cards which would be necessary if the SPRINT input spooler were being used.

This article has only been a brief introduction to the DEC 10 batch system. The Galaxy Batch Reference Manual contains additional details about the DEC 10 batch processor. Additional information about the relevant monitor commands is in the Operating Systems Command manual.

Ed West

IMSL ON GPJS AND HSJS

The International Mathematical and Statistical Library (IMSL) is a collection of mathematical and statistical routines written, for the most part, in FORTRAN. On the General Purpose Job Stream (GPJS), single or double precision versions of these routines are made available upon request. In addition, some IMSL routines are available on the High Speed Job Stream (HSJS). For some time now, the routines available on the HSJS and GPJS have not been identical.

To correct this situation, all IMSL routines which are available on the IMSL tape in packed form, were installed on the HSJS. In those cases where both the single and double precision versions of the same routine were available, only the double precision version was installed. For a list of all routines currently available in the HSJS library, submit the following job:

```
$JOBR LIBRARY=WATLIB,MEMBER=INDEX
```

This policy should benefit the users in several ways. HSJS users will now have access to more of these first-rate routines and it will be easier for users to run the same program on both the GPJS and the HSJS. In addition, the source code for a particular IMSL routine can be obtained by listing the routine from the HSJS, by either submitting a Utility job:

```
$JOBR LIB=WATLIB,MEMBER=member
```

where member is the name of the member

or by running a WATFIV job which calls the IMSL routine and then specifying LIBLIST on the $JOBW card.

Any questions or problems relating to this change in policy for the IMSL routines should be directed to either Bob Chambers at 978-8823 or Mark Tapia at 978-7109.

Bob Chambers
Mark Tapia

MATH PACKAGES AT UTCC

UTCC has several packages and subroutine libraries designed to solve problems of a mathematical nature. Some areas that these packages deal with are: linear programming, eigenanalysis, simulation, and optimization. Descriptions of the mathematical packages can be found in USERBOOK Chapter 3.7 Application Software.

Installation, maintenance, and documentation of these items are the responsibility of Bob Chambers, the Computing Co-ordinator at the New Physics Terminal (room 1202 of the Burton Tower). Bob also investigates new packages which may be useful to the user community. One of the current projects in this area is the assessment of mathematical software for the DEC 1090 machine.

There are two other services related to the math packages which may be of interest. The first is the Numerical Methods Consulting Service. This service is designed to assist users in the selection of algorithms and packages to solve problems and was described in the July/August 1978 issue of COMPUTERNEWS. The second service is in the form of a short course intended to familiarize users with the array of mathematical packages available at UTCC (refer to the article in this month's issue of COMPUTERNEWS entitled NON-CREDIT SHORT COURSES.)

Herb Kugel

BIORHYTHMS PROGRAM AVAILABLE

Biorhythmic analysis is concerned with the study of the periodic or cyclical variations in human intellectual, emotional and physical potential. There are many services, some quite expensive, which will calculate an individual's biorhythms. UTCC has a donated program which will calculate a person's biorhythms and produce output in the form of printer plots. The only data required is the person's date of birth.

Further information pertaining to the biorhythms program can be obtained by coding the following:

```
// EXEC WHATBIO
```

Herb Kugel

PERSONNEL CHANGES

UTCC welcomes several new staff members who have joined the Centre during the past two months. Suzan Fawcett is our new Administration Co-ordinator and is working in UTCC's Management Office. Phil Girourd and Greg Hill have joined the Computer Research Facility as senior programmers. Welcome all.

We are sorry to announce that Ruth Borenstein has left the Centre and has taken a position in industry. Trudy Holland will be leaving the Centre this month.

cont'd...

PERSONNEL CHANGES cont'd

Trudy is leaving her position as Personnel and Records Administrator and will be returning to the University of Toronto as a full time student. Also, Wendy Kaye who is a secretary in the Management Office will be leaving the Centre and transferring to the Computer Systems Research Group.

Best of luck to all of you in your new pursuits.

Clara Periera

RECENT ACQUISITIONS IN THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Alagic, S.; Arbib, M.A.
The design of well-structured
and correct programs.
New York, Springer-Verlag, 1978.

Bohl, Marilyn.
A guide for programmers.
Englewood Cliffs, N.J., Prentice-Hall,
1978.

Bowles, Kenneth.
Microcomputer problem solving
using PASCAL.
New York, Springer-Verlag, 1977.

Canadian Society for Computational
Studies of Intelligence.
Proceedings of the second National
Conference, U of T, 1978.

Foster, C.C.
Computer architecture. 2nd ed.
New York, Van Nostrand Reinhold, 1976.

Freeman, P.; Wasserman, A.I.
Tutorial on software design
techniques.
Long Beach, Cal., IEEE Computer
Society, 1976.

Hamacher, V.C.; Vranesic, Z.G.;
Zaky, S.G.
Computer organization.
New York, McGraw-Hill, 1978.

Hannula, R.
Computers and programming: a
system/360-370 assembler
language approach.
Boston, Houghton Mifflin, 1974.

Hayes, J.P.
Computer architecture and
organization.
New York, McGraw-Hill, 1978.

Kernighan, B.W.: Ritchie, D.M.
The C programming language.
Englewood Cliffs, N.J., Prentice-Hall,
1978.

Rabinowitz, P., ed.
Numerical methods for nonlinear
algebraic equations.
London, Gordon and Breach, 1970.

Soma, J.T.
The computer industry.
Lexington, Mass., Lexington Books,
1976.

Symposium on Mathematical Foundations
of Computer Science, 4th, Marianske
Lazne, Czechoslovakia, Sept. 1975.
Mathematical foundations of
computer science, ed. by J. Becvar.
Berlin, Springer-Verlag, 1975.

Veronis, A.
Microprocessors: design and
applications.
Reston, Va., Reston Pub. Co., 1978.

Wetherell, C.
Etudes for programmers.
Englewood Cliffs, N.J., Prentice-Hall,
1978.

UTCC SYSTEMS

SYSTEM/370 MODEL 165-II

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR
- 4 megabytes of memory
- OS/MVT with HASP

SYSTEM/360 MODEL 65

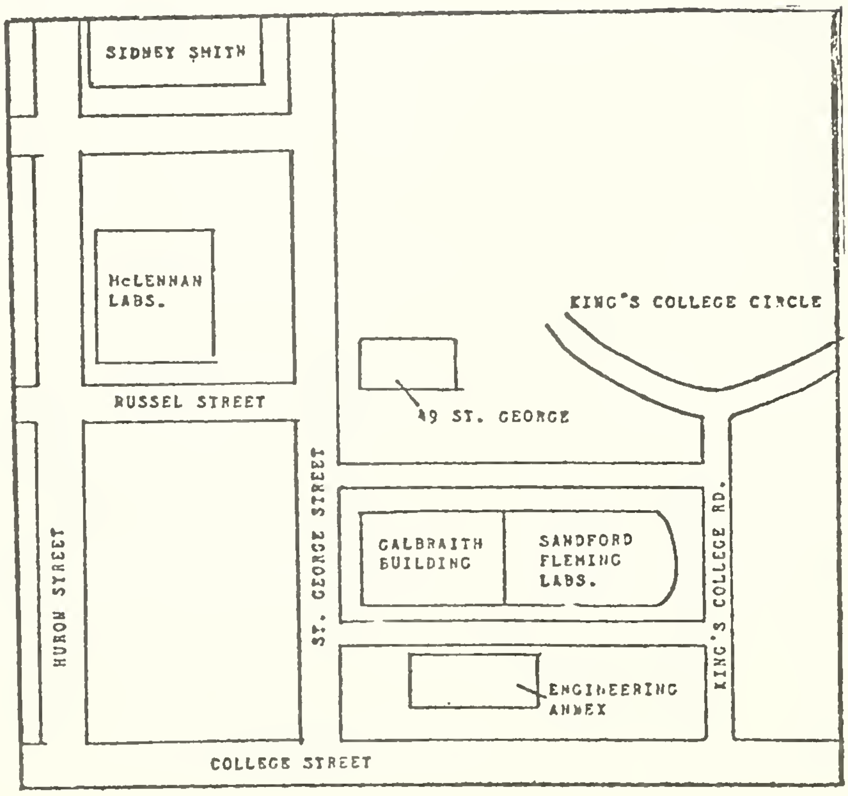
- located in McLennan Physical Laboratories
- provides APL and ATS services
- 1536K bytes of core
- OS/MVT with APL and ATS

COMPUTER RESEARCH FACILITY

- located in SF207
- DEC GT44 System with PDP-11/40 CPU
- DEC GT40 System with PDP-11/05 CPU
- provides specialized graphics and interactive graphics
- provides on-line and real-time computing services, data acquisition and minicomputer services

DECSYSTEM 1090

- located in SF109/112
- provides General Purpose Time-Sharing
- 256k - 36 bit words of memory
- TOPS10 operating system



UTCC DIRECTORY

DIRECTOR

Dr. Doron Cohen	NP238	8948

ASSISTANT TO THE DIRECTOR

Suzan Fawcett	NP238	4428

ASSOCIATE DIRECTOR

Rein Mikkor	NP238	5058

ASSOCIATE DIRECTOR

Al Heyworth	NP238	4936

INFORMATION OFFICE

General Inquiries	EA206	4990
Marg Doherty	EA206	8995

MANAGER, SERVICES

Stan Yagi	SG200	7331

INFORMATION SERVICES

Don Gibson	EA201	5568

SUPERVISOR, CUSTOMER SERVICES

Stan Yagi	SG200	7331

SUPERVISOR, PROGRAMMING SERVICES

Helen Peacock	SG201	6877

SUPERVISOR, APPLICATIONS

Herb Kugel	SG304	7286

SUPERVISOR, CO-ORDINATORS

Ralph Lombardi	SG305	7130

COMPUTING CO-ORDINATORS

Engineering Annex Terminal		
Jill Reece	EA103A	4357
Program Advisors	EA103	
Time-Sharing Support		
TS Advisors	SG204	6465
Mark Tapia	SG204	7109
Erindale		
Clem DiPlacido		828-5311
Scarborough		
Ihor Prociuk		284-3173
Arts and Science		
Sue Chong	SS2133	6509
New Physics		
Bob Chambers	NP1203B	8823

MANAGER, OPERATIONS

Derry Cox	EA201	7092

SUPERVISORS, OPERATIONS

Paul Scarborough(DEC S/370-165)	SF103	6220
Kam Jain (S/360-65)	NP333	7374
Dave Wong (S/370-158)		6864

MANAGER, SYSTEMS

Sean Keeley		3579

MANAGER, SYSTEM HARDWARE

Eugene Siciunas	EA201	4967

MANAGER, COMPUTER RESEARCH FACILITY

Dennis Smith	SF207	4086

LAB CO-ORDINATOR (CRF)

Krishna Patnaik	SF207	4086

ACCOUNTS

Merton Hunte	EA206	8702
Sylvia May	EA206	7148

ACCESS CODES

Janet Howarth	EA206	8703

NOTE:

EA = Engineering Annex
SF = Sandford Fleming
SG = 49 St. George
NP = McLennan Physical (New Physics)
SS = Sydney Smith

JOB AND SYSTEM STATUS QUERIES

SYSTEM/370,TSO	7373
ATS/APL	6234
2741 TERMINAL MALFUNCTIONS	7107

SERVICES

	DIAL-UP
APL,ATS	7200 CENTREX 7201 NON CENTREX
TSO,WYLBUR	6200 CENTREX 6201 NON CENTREX
DEC	4224 CENTREX 4244 NON CENTREX

PHONE-IN ADVISING 6465

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